

# Virtual Integrated Design

## RS232 Com Tap Data Monitor User's Guide v1.30



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## 1 – Introduction:

RS232 Com Tap is the best and least expensive device in it's class and is USB powered to make monitoring of full and half duplex rs232 communication much easier. Combined with our two reliable and proven programs, RS232M Com Monitor or RS232 Hex Com Tool, RS232 Com Tap is a complete rs232 monitoring solution (both registered programs are supplied).

Just plug RS232 Com Tap into a standard USB port with the supplied or any USB A to mini B cable, install the drivers and program(s) and begin monitoring. RS232 Com Tap can also be used with any rs232 terminal program that is compatible with virtual com ports (most are) including Windows HyperTerminal.

RS232 Com Tap can be used to at least 460.8K Baud with standard or non-standard baud rates. The supplied programs can also communicate at up to 1 mega baud.

A typical application setup is shown in figure 1 below.

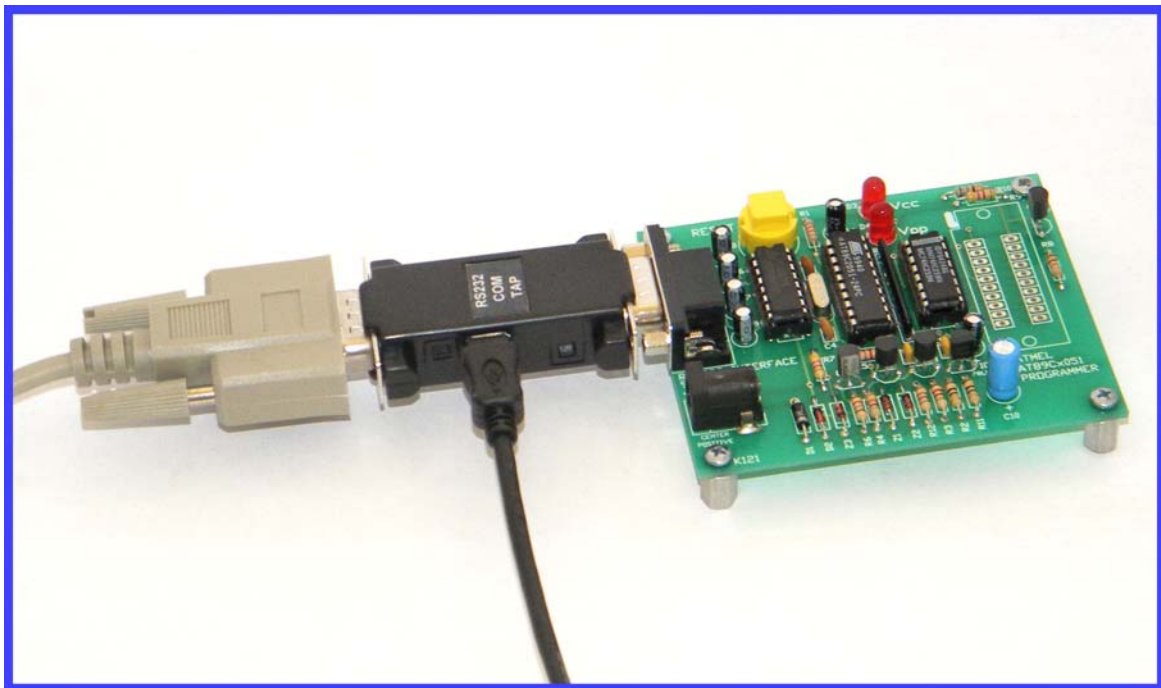


Figure 1

RS232 Com Tap drivers can be installed on a wide variety of operating systems including:

- Windows 7 – 32 and 64-bit
- Windows Vista – 32 and 64-bit
- Windows XP – 32 and 64-bit
- Windows Server 2003
- Windows 98, 98SE, ME, 2000
- Windows XP Embedded
- Windows CE .NET 4.2 & 5.0
- MAC OS 8 / 9, OS-X
- Linux 2.4 and greater

## 2 – Driver Installation:

### For Windows XP -

- If the PC has Windows XP or Windows XP SP 1 OS, temporarily disconnect the PC from the Internet. This is not necessary under Windows XP SP 2 if configured to ask before connecting to Windows Update. Windows XP SP 2 can have the settings for Windows Update changed through "Control Panel\System" then select the "Hardware" tab and click "Windows Update".
- Connect the RS232 Com Tap to a spare USB port. When If the RS232 Com Tap is detected, the Microsoft composite device driver is automatically loaded in the background. Once the composite driver has been installed Windows Found New Hardware Wizard will launch. If there is no available Internet connection or Windows XP SP 2 is configured to ask before connecting to Windows Update, the screen shown in Figure 2 is displayed. Select "No, not this time" from the options available and then click "Next" to proceed with the installation. If there is an available Internet connection, Windows XP will silently connect to the Windows Update website and install any suitable driver it finds for the device in preference to the driver manually selected.



Figure 2

- Insert driver CD and select "Search Removable Media..." as shown in Figure 3 below and then click "Next".

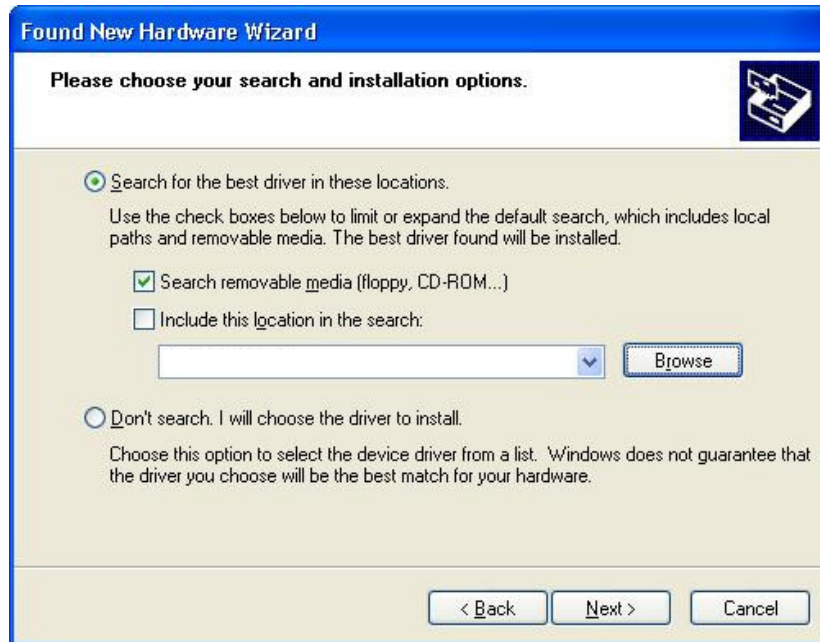


Figure 3

- Occasionally it may be necessary to navigate to the "Drivers" directory.
- When the path has been found, click next.
- If Windows XP is configured to warn when unsigned (non-WHQL certified) drivers are about to be installed, the message dialogue shown in figure 4 will be displayed unless installing a Microsoft WHQL certified driver. Click on "Continue Anyway" to continue with the installation. If Windows XP is configured to ignore file signature warnings, no message will appear.



Figure 4

- After windows copies all needed files a message is displayed indicating the drivers were installed successfully.
- The New Hardware Wizard will continue by installing the USB Serial Converter driver for the second port of the device. The procedure for installing the second port is identical to that for installing the first port from the first screen of the Found New Hardware Wizard.
- To confirm installation, open the Device Manager (located in "Control Panel\System" then select the "Hardware" tab and click "Device Manger") and select "View > Devices by Type", two devices appear under "Ports (COM & LPT)" each as "USB Serial Port" with an additional label (COMx).

### **For Windows Vista -**

- The procedure for installing on Windows Vista is virtually identical to XP but with slightly different looking windows.
- With Windows XP SP2 or higher and an internet connection, Windows Update will find the correct drivers but the process takes more time to complete.

### 3 – Monitoring Communication:

Connect the devices that are to be monitored with an RS232 cable with the RS232 Com Tap connected between them to either device such as in figures 1, 6 or 7. In the case of figure 1 a computer is connected to the RS232 cable shown on the left but the Com Tap could be connected to the computer and the cable connected to the circuit board.

After installation of the RS232 Com Tap drivers, install RS232 Com Monitor by double clicking the “Programs\RS232M Com Monitor v4.0 Registered\SETUP.exe” icon and following the on screen directions. This program shows both the DTE and DCE communication simultaneously.

Check the ports that the drivers set during driver installation and take note of them so that they can be used in setting up the RS232 Com Monitor ports. If the ports that the drivers set automatically are not optimal ports, they can be changed in the advanced settings of device manager.

Start the RS232 Com Monitor application and set the DTE port to the first port installed by Com Tap’s drivers and DCE to the second port.

Set the “View” to either “HEX” or “ASCII” depending on the data that is transferred between the DTE and DCE.


Set the com port properties such as baud rate and handshaking by clicking the “Com Setup” button that looks like this  and entering the information in the combo boxes. The baud rate can also be set by clicking in the baud rate box and typing it in. Any baud rate up to 1 mega baud can be set, including non-standard baud rates. The RS232 Com Tap unit itself is only guaranteed up to 250K baud but the unit may operate higher, depending on packet length, especially with standard baud rates.

Figure 5 shows the com setup window in the RS232 Com Monitor program.

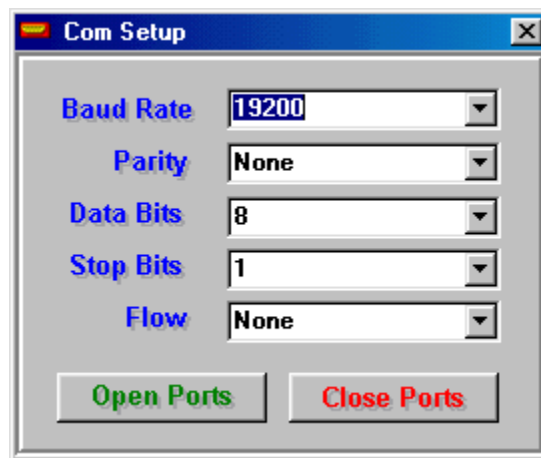


Figure 5

Extra help is available in the RS232 Com Monitor program by clicking “Help > Help File”. In Vista it will be necessary to download the Windows Help Program for Vista at:

<http://www.microsoft.com/downloads/details.aspx?familyid=6EBCFAD9-D3F5-4365-8070-334CD175D4BB&displaylang=en>

Now, simply open the com ports by right clicking on the program and selecting “Open Ports” or open the “Com Setup” window and click “Open Ports” to view data.



## 4 – Hook-Up Examples:

There are two basic ways to monitor RS232 data using a RS232 Com Tap Data Monitor and RS232M Com Monitor software.

The first method (shown in figure 6) is to install RS232M Com Monitor on the same PC (DTE) as the software that communicates with the DCE. The DCE is the device that takes commands from and most of the time responds to the DTE. Examples of DCE devices are (Embedded PCB, modem, CNC machine, cash register, etc).

The RS232 Com Tap drivers install two virtual com ports on the DTE. The two additional com ports are installed consecutively on the monitoring PC.

RS232M Com Monitor is run at the same time as the DCE controlling software and captures the data.

The advantage of this system is that there is no extra hardware required.

The disadvantage is that the DTE's system resources may be loaded down with the control software and running the monitor software may change the system timing. This usually is not a problem unless the control software is running at a high baud rate and/or transferring large amounts of data.

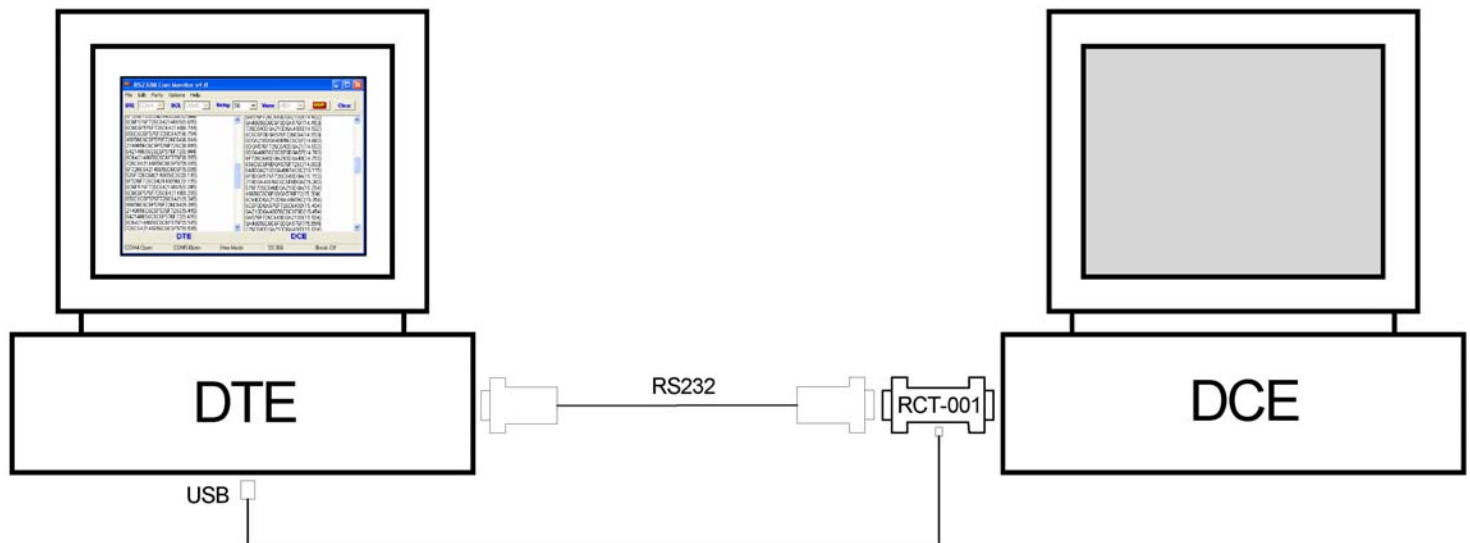


Figure 6

The second method of monitoring (figure 7) is to install RS232M com monitor on a separate PC such as one of the smaller “Netbooks” now available. These Netbooks have fast processors and are more than capable of running the monitoring software. A Netbook can be purchased for about \$300.00.

Standard laptop PCs can be used as well as desktops or even Pocket PCs. Pocket PCs must have USB host capability and can run Windows CE.

The advantage of this setup is that it puts no load on the system resources that are running the controlling software so the timing of that system will be completely unaffected by the monitoring software or drivers.

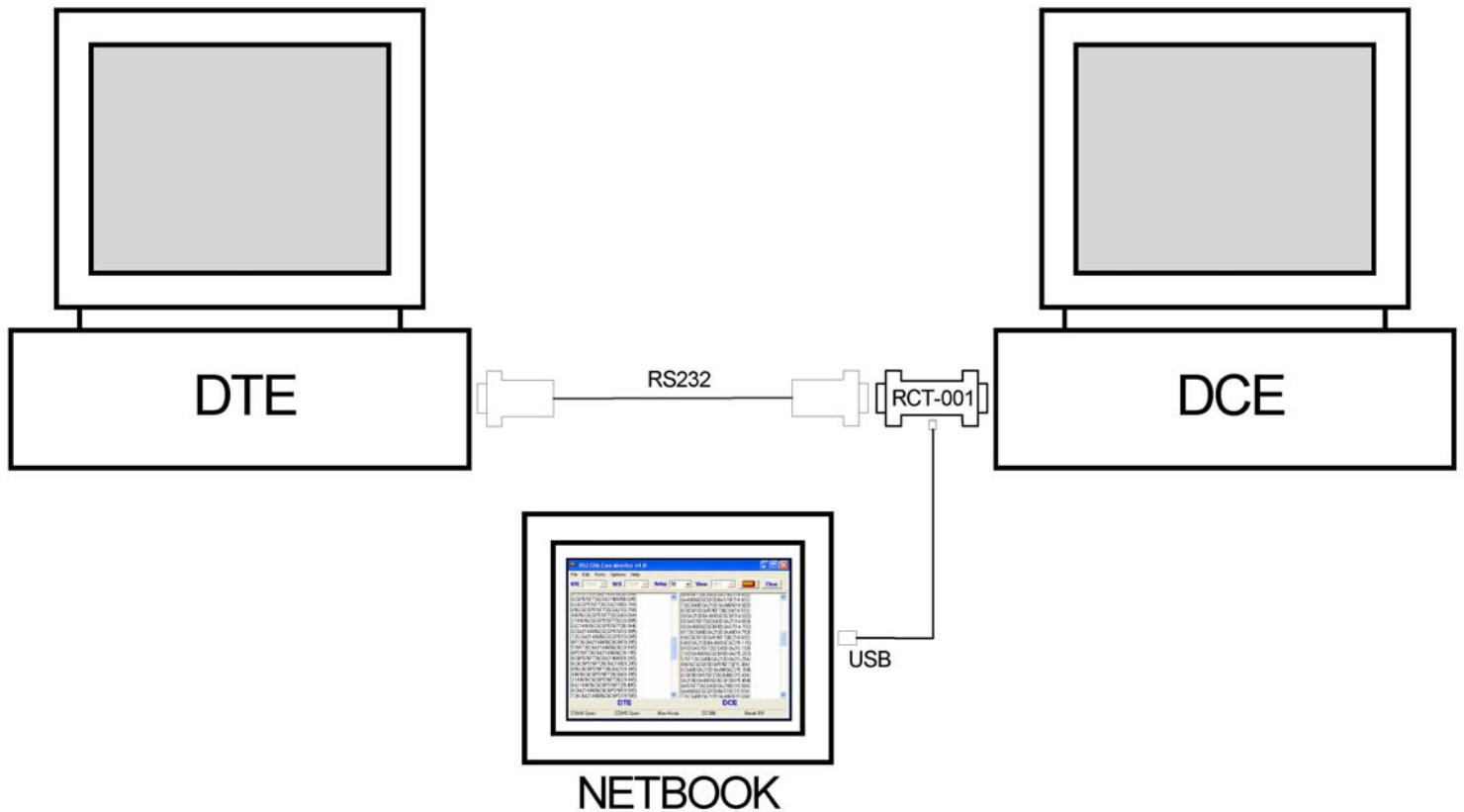


Figure 7